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Test 1493: Ford 3910 (8x2) Diesel 8-Speed

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1493—FORD 3910 (8x2) DIESEL 8 SPEED

POWER TAKE-OFF PERFORMANCE

| Power Hp (kW) | Crank shaft speed rpm | Fuel Consumption | | | Temperature °F (°C) | | | Barometer inch Hg (kPa) | |
|--|--------------------------------|-------------------|-----------------------|-----------------------|---------------------|--------------------|--------------------|-------------------------------|--------------------|
| | | gal/hr (l/h) | lb/hp.hr (kg/kW.h) | Hp.hr/gal (kW.h/l) | Cooling medium | Air wet bulb | Air dry bulb | | |
| MAXIMUM POWER AND FUEL CONSUMPTION | | | | | | | | | |
| Rated Engine Speed—Two Hours (PTO Speed—600 rpm) | | | | | | | | | |
| 42.62 (31.78) | 2000 | 2.760 (10.448) | 0.453 (0.276) | 15.44 (3.042) | 193 (89.3) | 57 (13.8) | 75 (23.8) | 29.183 (98.548) | |
| Standard Power Take-off Speed (540 rpm)—One Hour | | | | | | | | | |
| 40.39 (30.12) | 1799 | 2.546 (9.638) | 0.441 (0.268) | 15.86 (3.125) | 195 (90.5) | 57 (13.9) | 75 (23.8) | 29.180 (98.536) | |
| VARYING POWER AND FUEL CONSUMPTION—Two Hours | | | | | | | | | |
| 37.13 (27.69) | 2049 | 2.452 (9.282) | 0.462 (0.281) | 15.14 (2.983) | 186 (85.3) | 56 (13.6) | 76 (24.2) | | |
| 0.00 (0.00) | 2137 | 0.883 (3.343) | | | 152 (66.9) | 56 (13.6) | 75 (23.9) | | |
| 19.04 (14.20) | 2100 | 1.603 (6.068) | 0.589 (0.358) | 11.88 (2.340) | 156 (69.2) | 56 (13.3) | 74 (23.3) | | |
| 43.04 (32.09) | 2000 | 2.773 (10.497) | 0.451 (0.274) | 15.52 (3.057) | 192 (88.9) | 56 (13.3) | 74 (23.3) | | |
| 9.58 (7.14) | 2114 | 1.234 (4.671) | 0.902 (0.549) | 7.76 (1.529) | 162 (71.9) | 56 (13.3) | 74 (23.3) | | |
| 28.16 (21.00) | 2072 | 2.027 (7.673) | 0.504 (0.307) | 13.89 (2.737) | 184 (84.4) | 58 (14.2) | 77 (25.0) | | |
| Av Av | 22.83 (17.02) | 2079 (6.924) | 1.829 (0.341) | 0.561 (2.458) | 12.48 (77.8) | 172 (13.6) | 56 (23.8) | 75 (98.536) | 29.180 (98.536) |

DRAWBAR PERFORMANCE

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crank- shaft speed rpm | Slip % | Fuel Consumption | | | Temp. °F (°C) | | | Barom. inch Hg (kPa) |
|--|--------------------------------|------------------------|---------------------------------|-----------|-------------------|-----------------------|-----------------------|---------------------|--------------------|--------------------|----------------------------|
| | | | | | gal/hr (l/h) | lb/hp.hr (kg/kW.h) | Hp.hr/gal (kW.h/l) | Cool- ing med | Air wet bulb | Air dry bulb | |
| Maximum Available Power—Two Hours 5th Gear | | | | | | | | | | | |
| 35.62 (26.56) | 2250 (10.01) | 5.94 (9.55) | 2000 | 5.49 | 2.672 (10.114) | 0.525 (0.319) | 13.33 (2.626) | 188 (86.4) | 43 (6.1) | 54 (11.9) | 29.245 (98.756) |
| 75% of Pull at Maximum Power—Ten Hours 5th Gear | | | | | | | | | | | |
| 28.99 (21.62) | 1755 (7.81) | 6.19 (9.97) | 2058 | 4.21 | 2.290 (8.670) | 0.553 (0.336) | 12.66 (2.493) | 181 (82.9) | 45 (7.2) | 57 (13.6) | 29.182 (98.543) |
| 50% of Pull at Maximum Power—Two Hours 5th Gear | | | | | | | | | | | |
| 19.89 (14.84) | 1170 (5.20) | 6.38 (10.26) | 2092 | 3.01 | 1.857 (7.031) | 0.653 (0.397) | 10.71 (2.110) | 150 (65.3) | 45 (6.9) | 57 (13.6) | 29.220 (98.672) |
| 50% of Pull at Reduced Engine Speed—Two Hours 6th Gear | | | | | | | | | | | |
| 19.92 (14.85) | 1170 (5.20) | 6.38 (10.27) | 1676 | 2.89 | 1.615 (6.112) | 0.567 (0.345) | 12.34 (2.430) | 150 (65.6) | 44 (6.7) | 57 (13.6) | 29.185 (98.553) |
| MAXIMUM POWER IN SELECTED GEARS | | | | | | | | | | | |
| 25.20 (18.79) | 4931 (21.93) | 1.92 (3.08) | 2054 | 14.99 | 2nd Gear | | | 178 (80.8) | 47 (8.3) | 53 (11.7) | 28.950 (97.760) |
| 35.24 (26.28) | 3811 (16.95) | 3.47 (5.58) | 2001 | 9.96 | 3rd Gear | | | 188 (86.7) | 43 (6.1) | 50 (10.0) | 29.240 (98.739) |
| 36.28 (27.05) | 2786 (12.39) | 4.88 (7.86) | 2000 | 6.81 | 4th Gear | | | 188 (86.7) | 44 (6.7) | 51 (10.6) | 29.250 (98.773) |
| 37.02 (27.60) | 2340 (10.41) | 5.93 (9.55) | 2000 | 5.52 | 5th Gear | | | 188 (86.4) | 42 (5.6) | 52 (11.1) | 29.260 (98.807) |
| 36.13 (26.95) | 1805 (8.03) | 7.51 (12.08) | 2002 | 4.31 | 6th Gear | | | 188 (86.7) | 44 (6.7) | 52 (11.1) | 29.250 (98.773) |

LUGGING ABILITY IN 5th GEAR

| | | | | | | |
|----------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Crankshaft Speed rpm | 2000 | 1801 | 1598 | 1403 | 1203 | 1009 |
| Pull—lbs (kN) | 2340 (10.41) | 2462 (10.95) | 2595 (11.54) | 2716 (12.08) | 2719 (12.09) | 2713 (12.07) |
| Increase in Pull % | 0 | 5 | 11 | 16 | 16 | 16 |
| Power—Hp (kW) | 37.02 (27.60) | 34.97 (26.07) | 32.55 (24.27) | 29.79 (22.22) | 25.55 (19.05) | 21.38 (15.95) |
| Speed—Mph (km/h) | 5.93 (9.55) | 5.33 (8.57) | 4.70 (7.57) | 4.11 (6.62) | 3.52 (5.67) | 2.96 (4.76) |
| Slip % | 5.52 | 5.80 | 6.36 | 6.70 | 6.81 | 6.70 |

Department of Agricultural Engineering

Dates of Test: September 14-26, 1983

Manufacturer: FORD MOTOR COMPANY,
Ford Tractor Operations, 2500 East Maple
Road, Troy, Michigan 48084

FUEL, OIL AND TIME: Fuel No. 2 Diesel
Cetane No. 47.0 (rating taken from oil company's
inspection data) Specific gravity converted to 60°/
60° (15°/15°) 0.8406 Fuel weight 6.999 lbs/gal
(0.839 kg/l) Oil SAE 30 API service classifica-
tion SE-SF, CC-CD To motor 1.372 gal (5.194 l)
Drained from motor 1.220 gal (4.618 l) Trans-
mission and final drive lubricant Ford 134 fluid
Total time engine was operated 44.0 hours.

ENGINE: Make Ford Diesel Type three cylin-
der vertical Serial No. *C699116* Crankshaft
lengthwise Rated rpm 2000 Bore and stroke 4.4"
× 4.2" (112 mm × 107 mm) Compression ratio
16.3 to 1 Displacement 192 cu in (3147 ml) Start-
ing system 12 volt Lubrication pressure Air
cleaner two paper elements Oil filter one full
flow paper cartridge Fuel filter one paper ele-
ment Muffler vertical Cooling medium tempera-
ture control one thermostat.

CHASSIS: Type standard Serial No.
C699560 Tread width rear 60" (1525 mm) to
80" (2032 mm) front 52" (1320 mm) to 80" (2032
mm) Wheel base 77.5" (1969 mm) Center of grav-
ity (without operator or ballast, with minimum
tread, with fuel tank filled and tractor serviced for
operation) Horizontal distance forward from center-
line of rear wheels 28.7" (729 mm) Vertical distance
above roadway 33.2" (842 mm) Horizontal
distance from center of rear wheel tread 0" (0 mm)
to the right/left Hydraulic control system direct
engine drive Transmission selective gear fixed
ratio Advertised speeds mph (km/h) first 1.8 (2.9)
second 2.2 (3.5) third 3.9 (6.3) fourth 5.2 (8.4)
fifth 6.3 (10.1) sixth 7.8 (12.5) seventh 13.7 (22.0)
eighth 18.8 (30.2) reverse 2.5 (4.0), 9.0 (14.5)
Clutch single plate dry disc operated by foot pedal
Brakes multiple wet disc operated by two foot
pedals which can be locked together Steering
power assist Turning radius (on concrete surface
with brake applied) right 114" (2.89 m) left 114"
(2.89 m) (on concrete surface without brake) right
136" (3.45 m) left 136" (3.45 m) Turning space
diameter (on concrete surface with brake applied)
right 233" (5.92 m) left 233" (5.92 m) (on concrete
surface without brake) right 275" (6.98 m) left 275"
(6.98 m) Power take-off 540 rpm at 1799 engine
rpm.

REPAIRS and ADJUSTMENTS: The fuel in-
jectors were replaced during preliminary PTO
tests.

TRACTOR SOUND LEVEL WITHOUT CAB**dB(A)**

| | |
|---|------|
| Maximum Available Power—Two Hours | 95.5 |
| 75% of Pull at Maximum Power—Ten Hours | 96.0 |
| 50% of Pull at Maximum Power—Two Hours | 94.5 |
| 50% of Pull at Reduced Engine Speed—Two Hours | 93.5 |
| Bystander in 8th gear | 87.0 |

TIRES, BALLAST AND WEIGHT

| | With Ballast | Without Ballast |
|---|--------------------------|--------------------------|
| Rear Tires | | |
| —No., size, ply & psi (kPa) | Two 16.9-24; 6; 16 (110) | Two 16.9-24; 6; 16 (110) |
| Ballast | | |
| —Liquid (each) | 505 lb (229 kg) | None |
| —Cast Iron (each) | 330 lb (150 kg) | None |
| Front Tires | | |
| —No., size, ply & psi (kPa) | Two 6.50-16; 6; 36 (250) | Two 6.50-16; 6; 36 (250) |
| Ballast | | |
| —Liquid (each) | None | None |
| —Cast Iron (each) | 45 lb (20 kg) | None |
| Height of Drawbar | 17.5 in (445 mm) | 17.5 in (445 mm) |
| Static Weight with Operator—Rear | 4655 lb (2111 kg) | 2985 lb (1354 kg) |
| —Front | 1785 lb (810 kg) | 1695 lb (769 kg) |
| —Total | 6440 lb (2921 kg) | 4680 lb (2123 kg) |

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 141°F (60.4°C). Five gears were chosen between 15% slip and 10 mph (16.1 km/h).

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1493.**

LOUIS I. LEVITICUS

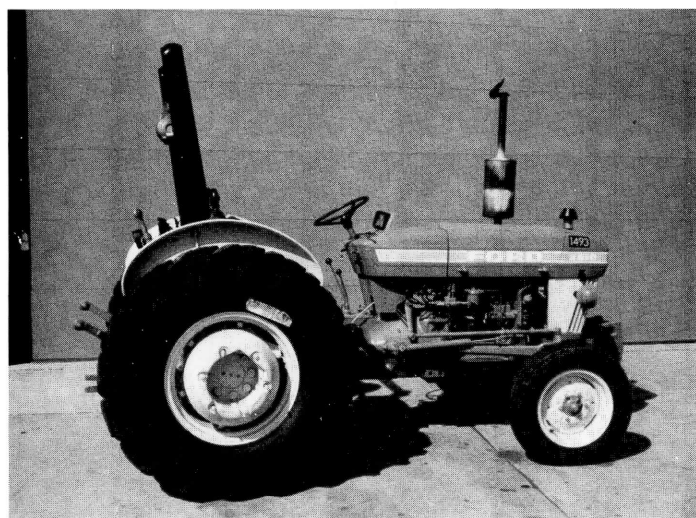
Engineer-in-Charge

K. VON BARGEN

W. E. SPLINTER

L. L. BASHFORD

Board of Tractor Test Engineers



Ford 3910 (8x2) Diesel